VOLUME 10 1989

SUBJECT INDEX

ATPase, 717
Aberrant neuronal growth, 557
Acetylcholine, 11, 181
Acetylcholinesterase, 45
Actin, 359
Adrenal gland, 331
α_1-Adrenergic receptors, 323
Age, 159
Aged, 167
Aging, 11, 21, 31, 51, 55, 95, 125, 133, 143, 149, 181, 187, 233, 241, 247, 259, 273, 305, 311, 317, 323, 331, 337, 347, 353, 359, 367, 387, 557, 665, 677, 683, 721, 727, 739, 753
Aging in rats, 669
Alzheimer's disease, 45, 75, 89, 125, 173, 191, 247, 253, 287, 343, 417, 451, 481, 515, 557, 593, 623, 709, 717, 739, 753
Ambulatory monitoring, 259
Amino acids, 665
Amyloid, 753
Amyloid precursor protein, 125
β-Amyloid precursor protein, 387
Amyloid proteins, 451
Amyloidosis, 481
Angiogenesis, 353, 683
Apomorphine, 227
Ataxia, 727
Autoradiography, 305
Axoplasmic flow, 359

Base-exchange, 241
Behavior, 167
Biodegradable polymers, 623
Biologically active recombinant human NGF, 89
Blood vessels, 683
Brain, 143, 187, 305

CSF, 45
Calcium, 717
Capillary, 353
Catechol-O-methyl transferase, 331
Cell loss, 721
Central auditory system and aging, 295
Central cholinergic neurons, 89
Central nervous system, 55
Cerebral cortex, 187, 317, 709
ChAT-IHC, 173
Choline, 45
Choline acetyltransferase, 143, 287
Cholinergic neurons, 75, 173, 739
Cholinergic receptor, 191
Cholinergic systems, 133, 557
Cholinesterases, 143
Chronic lymphocytic thyroiditis, 247
Circadian rhythms, 259
Clathrin, 359
Cochlear nucleus, 295
Cognitive function, 199
Colocalization, 287
Constant estrus, 323
Convulsive agents, 117
Cortex, 11
Corticotropin releasing, 167
Cytoskeletal proteins, 557
Cytoskeleton, 359

Deafferentation, 51
Dementia of the Alzheimer type, 227
Dendritic spines, 317
Denervation, 191
3,4-Diaminopyridine, 337
Dietary restriction, 27, 317
Diurnal rhythms, 691
Dopamine, 187
Dopamine function, 227
Dopamine uptake sites, 661
Down's syndrome, 253
Drug infusion pumps, 623
Drug therapy, 451

EEG, 677
EMGs, 149
Electrophysiology, 117
Epinephrine, 323, 331
Excitatory amino acids, 593
Excitotoxins, 173, 593, 665
Expression vector, 89

Falls, 727
Familial Alzheimer's disease, 387
Fibroblasts, 717
Fischer 344 rats, 143
Flavor memory task, 27
Frontal cortex, 191, 665

[^{3}H]GBR-12935-binding, 661
Gait, 721
Genetic epidemiology, 417
Glia, 683
Glutamate, 11, 593, 665
Glycosaminoglycans, 481
Golgi impregnation, 317
Group I afferents, 721
Growth hormone secretion, 227

Heparan sulfate, 481
Hippocampus, 117, 709, 739
Histopathology, 709
Human, 159, 311, 721
Human brain, 661, 753
Human nerve growth factor, 89
Human nerve growth factor gene, 89
Hypoxemia, 343

Immunofluorescence, 287
Immunohistochemistry, 75, 117
Immunoperoxidase, 287
Individual differences, 31, 691
Interstimulus intervals, 59
Intraocular transplants, 117
Iris, 51

Kainate, 593
Kinematics, 159

Learning, 133, 149
Learning and memory, 347
Leg flexion, 59
Lesion, 173, 191
Life-long food restriction, 669
Lipofuscin, 125
Locus caeruleus, 5, 117, 709
Long-loop, 311

M1 and M2 cholinergic receptors, 305
mRNA, 753
Mammalian expression system, 89
Memory, 31, 173, 199
Memory deficits, 337
Mental status, 343
N-methylaspartate, 173
Methylation, 241
Mice, 167, 295
Microtubules, 359
Microvasculature, 353
Molecular genetics, 417
Monkeys, 11
Monoamine oxidase, 331
Monoamines, 11
Monoclonal antibodies, 125
Monoclonal antibodies SMI-31/SMI-34, 253
Monoclonal antibodies to neurofilaments, 253
Morphometry, 683
Morris water maze, 273
Motor dysfunction, 159
Motor performance, 347
Movement, 149, 159
Multivariate analysis, 347
Muscarinic receptor sites, 143
Muscle spindle, 311

NGF, 739
NMDA, 593
Naloxone, 55
Neophobia, 27, 133, 691
Nerve cell loss, 5
Nerve growth factor, 515, 739
Nerve growth factor receptor, 75, 287
Neural plasticity, 353
Neuroendocrinology, 683
Neurofibrillary degeneration, 709
Neurofibrillary tangles, 709
Neurofilaments, 253, 359
Neurologic disorders, 727
Neuronal aging, 253
Neuronal degeneration, 709
Neuronal plasticity, 317
Neuronal survival, 739
Neurons, 683
Neuropsychology, 343
Neurotransmitters, 11, 31
Neurotrophic factors, 515, 557
Norepinephrine, 323, 331
Norepinephrine system, 133
Normal aging, 227, 661
Nucleus basalis, 173, 709

Old age, 5
Opiate receptors, 55
Oral intake, 367

Paired helical filaments, 387

Paradoxical sleep, 367
Parkinson's disease, 515
Passive avoidance, 181
Pathogenesis, 481
Pavlovian conditioning, 59
Persistently pseudopregnant, 323
Phenylethanolamine-N-methyl transferase, 331
Phosphoepitopes, 253
Phosphorylation, 253
Pineal, 51
Posture, 727
Practice, 149
Presbycusis, 295
Presynaptic receptor, 95
Principal components analysis, 347
β-protein, 125
Proteoglycans, 481
Pseudoconditioning, 59
Putamen, 661
Pyridostigmine, 199

Quisqualate, 593

Radial-arm maze, 27
Rat, 59, 173, 233, 273, 337, 691
Reaction time, 691
Receptor up-regulation, 55
Receptors, 11, 593
α-Receptors, 117
Restoration, 21

SPG-decarboxylase, 241
Scopolamine, 133
Senescence, 117
Senile dementia, 199
Sensorimotor deficits, 691
Sensorimotor function, 31
Sensorimotor performance, 727
Septo-hippocampal neurons, 181
Septum, 739
Serotonin, 95, 187
Sleep, 21, 31, 259, 677
Sleep and aging, 343
Sleep apnea, 343
Sleep disorders, 21
Sleep fragmentation, 21
Sleepiness, 259
Somatosensory/sensorimotor, 173
Somatostatin, 367
Somatostatin analogue, 367
Spatial learning, 691
Spatial memory, 273, 337, 669
Spectral analysis, 677
Spinal cord, 95
Spinal interneurons, 721
Spinal reflexes, 311, 721
Spontaneous alternation, 181
Spontaneous motor activity, 259
Stereology, 353
Stretch reflex, 311
Striatum, 11
Superior cervical ganglion, 51
Supersensitivity, 191
Sympathetic nervous system, 51
Synaptic vesicles, 51

Tactile, 173
Tau protein, 387
Thyroid abnormalities, 247
Tissue transplantation, 623
Transsynaptic regulation, 51
Trophic factors, 515
Tubulin, 359
Two-process model, 677
Tyrosine hydroxylase, 331

Ultrastructure, 295

Vasopressin, 233
Visual cortex, 353

Water balance, 233
Wistar rats, 143

AUTHOR INDEX

Abe, K., 417
Abraham, C. R., 463
Aitken, D. H., 273
Alemany, J., 331
Allard, P., 661
Amaducci, L., 440
Anderton, B. H., 441
Appel, S. H., 580
Arendash, G., 191
Armstrong, L. S., 717
Ashford, J. W., 99

Bancher, C., 125, 409
Bardo, M. T., 55
Barnes, C. A., 337
Bartus, R. T., 1, 381, 383, 385, 415, 449, 479, 513, 555, 591, 621
Bassant, M. H., 181, 187
Bedetti, C. D., 247
Beersma, D. G. M., 677
Benditt, E. P., 506
Biegon, A., 305
Bird, T. D., 432
Bjorklund, A., 347
Black, J. E., 353
Blanchard, B. J., 253
Bliwise, D. L., 343
Blume, A. J., 406
Bond, N. W., 27
Bondareff, W., 709
Bonnet, M. H., 21
Bothwell, M., 287
Bowen, D. M., 616
Brady, S. T., 359
Breakefield, X. O., 647
Brem, H., 642
Brewster, M. E., 638
Bridges, R. J., 603
Briner, W., 295
Brooke, J. D., 721
Brown, S. H., 149, 159
Bruce, G., 89
Brunetti, M., 241
Buchanan, S.. L., 59
Bukhari, A. R., 331
Burwell, R. D., 691
Butcher, L. L., 557, 588
Butterworth, J., 107

Cape, R. D. T., 199
Caputo, C. B., 451, 477, 503
Carlson, S. W., 233
Chachich, M. E., 133
Chambers, J. P., 717
Chang, J. Y., 549
Chen, K. S., 545
Chini, B., 371
Choi, D. W., 605
Clementi, F., 371
Cohen, I. R., 323
Coleman, P. D., 3, 115
Conneally, P. M., 417, 446
Conti, L. H., 31
Cooke, J. D., 149, 159
Cordell, B., 468
Cork, L. C., 11
Cotman, C. W., 571, 603
Cozzari, C., 173
Crews, F. T., 191
Crowther, R. A., 405
Cuello, A. C., 539
Cunningham, D. A., 159
Currie, J., 409
Curtis, N. J., 133
Danguir, J., 367
Darling, W. G., 149
Dastoor, D., 227
Davies, P., 408
Davis, K. L., 475
Dawson, R., Jr., 665
DeFeudis, F. V., 467
Dement, W. C., 343
Dickson, D. W., 402
Dijk, D. J., 677
Drachman, D. A., 632
Dunnett, S. B., 347

Elble, R., 45
Eppich, C., 337
Eriksdotter-Nilsson, M., 117
Everitt, A. V., 27

Farrer, L. A., 417, 446
Fernandez-Ruiz, J. J., 331
Festoff, B. W., 465
Finch, C. E., 753
Finger, S., 173
Flaherty, K. N., 51
Folstein, M. F., 434
Fortuna, S., 143
Francis, P. T., 616

Gage, F. H., 347, 545, 644
Gaiti, A., 241
Gallagher, M., 691
Gallagher, M. J., 233
Gash, D. M., 287, 645
Gatti, C., 241
Gauthier, S., 227
Geddes, J. W., 571, 603
Gerhardt, G., 117
Giacobini, E., 45
Gibson, G., 608
Goate, A. M., 429
Godefroy, F., 187
Goedert, M., 405
Gold, P. E., 31
Gordon, A., 107
Gould, B. E., 683
Granholm, A.-C., 117
Greenamyre, J. T., 593, 618
Greenberg, D. A., 438
Greenberger, V., 305
Greenough, W. T., 353
Greif, K. F., 51
Grundke-Iqbal, I., 125
Gusella, J. F., 417, 446
Guyda, H., 227

Haines, J. L., 417, 446
Hammond, D. N., 575
Hanau, M., 305
Harbaugh, R. E., 623, 648
Hardy, J. A., 429
Hartikka, J., 515, 552
Hauser, D. L., 709
Haverkamp, L. J., 537
Hefti, F., 75, 515, 552, 583, 739
Heinrich, G., 89
Henneberry, R. C., 611
Hernandez, M. L., 331
Hersh, L., 287
Heston, L. L., 443
Higgins, C., 45
Hoffer, B., 117
Hollister, L. E., 631
Horak, F. B., 727
Huff, F. J., 247

Ihara, 573
Ingram, D. K., 31, 133, 317
Ingram, V. M., 253
Iqbal, K., 125, 211, 409

James, M. F., 417
Jinnah, H. A., 644
Jobert, A., 181
Johnson, E. M., Jr., 549
Johnson, S. A., 753
Joly, M., 181

Kalant, N., 669
Kamen, G., 311
Katzman, R., 581
Kim, K. S., 125
Kisilevsky, R., 499
Knopman, D., 633
Knusel, B., 515, 552
Koceja, D. M., 311
Koike, T., 549
Kordower, J. H., 287, 543
Kumar, V., 99

Lal, S., 227
Lamour, Y., 181, 187
Langer, L. F., 642
Langer, R., 642
Lasek, R. J., 359
Lee, K. S., 609
Lieberman, H. R., 259
Linker, A., 507
London, E. D., 317
Lopez, O., 247
Lowe, S. L., 616

McDougall, S. A., 55
McGeer, E. G., 614
McIlroy, W. E., 721
McManaman, J. L., 580
McQuarrie, I. G., 359

Mann, D. M. A., 5, 397
Marcusson, J. O., 661
Marcyniuk, B., 5
Margolis, R. K., 500
Margolis, R. U., 500
Markowska, A. L., 31
Martin, D. P., 549
Martin, G. M., 432
Martinez, A. J., 247
Martinez, A. O., 717
Mash, D. C., 75
May, P. C., 606
Meaney, M. J., 273
Meldrum, M. J., 665
Mervis, R. F., 317
Michalek, H., 143
Miller, D., 409
Miller, M. M., 683
Mirka, A., 727
Mitchell, J., 669
Mobley, W. C., 578
Mohs, R. C., 438
Molloy, D. W., 199
Monaghan, D. T., 603
Montero, C. N., 739
Mooradian, A. D., 109
Morgan, D. G., 547
Morley, J. E., 167
Moroi-Fetters, S. E., 317
Morrow, E. A., 613
Mountjoy, C. Q., 709
Mufson, E. J., 287, 543
Mullan, M. J., 429
Murphy, R. M., 95
Myers, R. H., 417, 446

Nair, N. P. V., 227
Neisewander, J. L., 55
Nelson, J. F., 683
Neve, R. L., 400
Nonneman, A. J., 55

Olney, J. W., 173
Olton, D. S., 31
Owen, M. J., 429

Pangalos, M. N., 616
Pardridge, W. M., 636
Pearson, R. C. A., 429
Perl, D. P., 444
Perry, E. K., 473
Perry, R., 473
Peterson, G. M., 639
Phelps, C. H., 584
Phelps, C. J., 233
Pierce, D. J., 11
Pintor, A., 143
Polinsky, M., 353
Polinsky, R. J., 417, 446
Pontecorvo, M. J., 31
Powell, D. A., 59
Prescott, L., 59
Price, D. L., 11
Procter, A. W., 616

Ramos, J. A., 331
Rao, G., 337
Rapoport, S. I., 435
Raulli, R. E., 191
Read, S., 634
Reynolds, J., 31
Rizopoulos, E., 717
Rocca, W. A., 440
Rogers, J., 753
Rosenthal, M. J., 167
Roses, A. D., 427
Rossor, M. N., 429
Roth, M., 709

Salama, A. I., 451, 477
Sapolsky, R. M., 613
Schapiro, M. B., 435
Schellenberg, G. D., 432
Schubert, D., 504
Segal, M., 305
Seiger, Å., 117
Selkoe, D. J., 387, 412
Shelanski, M. L., 476, 577
Sherman, K. A., 99
Shirahama, T., 508
Shupert, C. L., 727
Silverman, J. M., 438
Singh, R., 721
Sladek, C. D., 233
Snow, A. D., 481, 510
Spangler, E. L., 133
Springer, J. E., 640
St George-Hyslop, P. H., 417, 446
Steele, J. E., 616
Stewart, G. R., 173
Stewart, J., 669
Stone, W. S., 31
Strittmatter, W. J., 580
Struble, R. G., 11

Tanzi, R. E., 417, 446
Tawar, V., 227
Teicher, M. H., 259
Tesfaye, Y., 227
Thavundayil, J. X., 227
Tinklenberg, J. R., 343
Tombaugh, G. C., 613
Tuszynski, M. H., 545, 644

Van Broeckhoven, C. L., 437
van den Hoofdakker, R. H., 677
Vitek, M. P., 406, 471

Wainer, B. H., 540
Walicke, P. A., 535
Wallace, D. R., 665
Walton, J., 27
Wayner, M. J., 717
Weil-Fugazza, J., 187
Weiland, N. G., 323
Wenk, G. L., 11, 31
Whatley, S. A., 441
Wight, T. N., 481, 510
Wijsman, E. M., 432
Williams, L. R., 586
Willott, J. F., 295
Wilson, M. K., 721
Wise, P. M., 323
Wisniewski, H. M., 125, 409
Woolf, N. J., 557, 588
Wozniak, D. F., 173
Wurtman, J. J., 259

Yanker, B. A., 470, 546
Yates, C. M., 107
Yates, P. O., 5
Yen, S-H. C., 402
Yesavage, J. A., 343
Yoon, P., 721
Young, A. B., 593, 618

Zemlan, F. P., 95